DOCUMENT RESUME

ED 165 485 FL 010 012

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TITLE On the Role of Conversational Implication in Proverb Comprehension.
SPONS AGENCY National Inst. of Mental Health (DHEW), Bethesda, Md.
PUB DATE 78
GRANT NIMH-5-T01-MH08520-15
NOTE 20p.; Paper presented at the Interdisciplinary Conference on Linguistics (4th, Louisville, Kentucky, April 1978) ; Best copy available

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Cognitive Processes; Communication (Thought Transfer); Context Clues; *Figurative Language; *Language Processing; Language Research; Linguistic Theory; Listening; *Listening Comprehension; Listening Skills; Literature Reviews; Models; *Proverbs; Psycholinguistics; *Speech Communication
IDENTIFIERS *Conversation; Grice (H P); Implication

ABSTRACT

The experiments described in this paper compare inference-based and expectancy-based models of the comprehension of indirect, non-literal expressions. The inference-based model claims that the comprehension of non-literal meanings requires more and deeper processing than the comprehension of literal meanings. The expectancy-based model rests on the presupposition that the speaker will respect Grician principles of conversation and will supply any information the hearer needs to know. The inference-based model discounts the relevance of this information in the inference process. The three experiments examined comprehension latencies for unfamiliar proverbs used both literally and figuratively after paragraphs of two lengths. In all three experiments, figurative uses of the proverbs were understood more rapidly than literal uses, and proverbs following long paragraphs were understood more rapidly than proverbs following short paragraphs. The data supported the hypothesis that comprehension is a unitary process concerned with determining what the other speaker means, and that ease of understanding is proportionate to the amount of shared information and presuppositions. Novel, non-literal uses of language are not intrinsically more difficult to understand than literal uses. (Author/AMH)

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On the Role of Conversational Implication in Proverb Comprehension

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Paper presented at the Fourth Annual Interdisciplinary Conference on Linguistics. University of Louisville, April, 1978.

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I am concerned with developing accounts of language comprehension. Any adequate account must permit both direct literal meanings and indirect non-literal meanings to be understood. How is it that we understand figurative expressions like irony, metaphor, hyperbole, and sarcasm? The work of H. P. Grice (1967/68) on conversational implication has been influential in the development of psychological models of comprehension. Grice pointed to a set of properties of conversations and facts about conversational contexts that permit speaker's meanings to be understood. Two types of comprehension models can be proposed based on these insights. One type holds that listeners actually infer the speaker's meaning via a chain of inferences from the literal meaning of an utterance, principles of conversation, and facts about the context. The other type of comprehension model holds that speaker's meanings can be directly and immediately understood when the speaker has correctly and adequately observed the principles of conversation.

Inference-based comprehension models claim that the comprehension of non-literal meanings requires more and deeper processing than the comprehension of literal meanings (Ortony, 1977). Listeners must first comprehend the literal meaning of an utterance and then reject this meaning, inferring the non-literal meaning. H. H. Clark has most strongly advocated such an inference-based account of the comprehension of non-literal speaker's meanings (Clark and Clark, 1977; Clark and Haviland, 1974; Clark and Lucy, 1975, Haviland and

Clark, 1974; Springston and Clark, 1973). The handout shows the four steps that Clark has proposed for the comprehension of non-literal meanings.

This model assumes that non-literal speaker's meanings are determined only when and if the literal meaning is rejected as the intended meaning of the speaker. At some point in the comprehension process, the literal meaning of an utterance has been understood but the non-literal meaning of the speaker has not yet been "computed." At some other, latter, point in the comprehension process, the non-literal meaning is inferred.

The inference-based comprehension model leads to the prediction that understanding an expression used non-literally should be more difficult and slower than understanding that same expression used literally. The literal meaning must be comprehended in both cases and further processing is required in order for the non-literal meaning to be "computed" if the literal meaning is inappropriate.

There is an alternative to this view of the role of conversational implication in comprehension. This alternative is based on presuppositions shared by speaker and audience. Speakers are obligated to utter remarks consistent with Gricean principles of conversation. Speakers must be informative, truthful, relevant, and perspicuous, and they must ensure that their remarks are not misunderstood. In order to conform to these principles, speakers must assess

what their audience knows about the topic of the conversation, the speaker's background, beliefs, and opinions, and extra-linguistic states of affairs. In light of this assessment, speakers must provide enough information for their meaning to be understood. Given shared experiences, common linguistic and extra-linguistic knowledge, and mutually known beliefs and opinions, a speaker's meaning will be directly and readily grasped if the speaker has respected the principles of conversation.

The Norwegian psycholgist Rommetveit (1974; 1977) has suggested that "what is made known" by an utterance depends on what was known. "What is made known"--the speaker's meaning--depends, in Rommetveit's terminology, on "an inter-subjectively established temporally shared social world." A speaker makes known novel information, including her implications, by "nesting it onto contextually established tacit presuppositions."

These tacit presuppositions include the presupposition that the speaker will respect Gricean principles of conversation and that the speaker will supply any information the audience needs to know. Speakers may exploit these shared presuppositions in order to convey more than they actually say. There is no need to explicitly say what another knows or can be assumed to know. And speakers may truely violate these principles by failing to adjust what they say to what is known by their audience.

If comprehension is held to be based on such shared presuppositions and expectancies, then ease of comprehension should be a function of the amount of information shared by speaker and audience. A remark out of context should be difficult to understand for the audience will share few presuppositions about the topic with the speaker. Expressions used non-literally should be no more difficult to understand than expressions used literally when contextual information is available about what is being talked about and what the speaker believes. The comprehension of non-literal meaning is not intrinsically more difficult than the comprehension of literal meaning.

The inference-based and expectancy-based accounts of conversational implicature differ in terms of their overall view of comprehension. The inference-based account holds that the comprehension of literal meaning is primary; non-literal meanings of speakers are not comprehended unless and until the literal meaning is rejected. The expectancy-based account, on the other hand, holds that the comprehension of the speaker's meaning is primary. The speaker's meaning, including the literal meaning of the utterance and the conversational implications of the the speaker, is understood in terms of shared presuppositions and common expectations.

The inference-based account makes the straightforward prediction that understanding an expression used non-literally should be more difficult than understanding that expression

used literally. The expectancy-based account does not predict an inevitable difference in the speed and ease of comprehension of non-literal and literal meanings. The inference-based account does not incorporate prior experiences or shared presuppositions; the amount of information available to the audience about the speaker's beliefs and opinions plays no role in the inference process. The expectancy-based account claims that the comprehension of speaker's meanings is based on shared presuppositions; the more the audience knows about the topic or the speaker, the more easily a speaker's remarks can be understood. These considerations suggest an experimental test of these two alternative accounts. Varying whether an expression is used literally or non-literally and the amount of information relevant to the interpretation of an expression should permit both accounts to be tested.

Proverbs were chosen as the experimental materials. "You can't teach a crab to walk upright" has both a specific literal meaning about crabs and a general non-literal meaning about the impossibility of certain things. The speaker's meaning may vary depending on the context. When crabs are the topic of a conversation, the literal interpretation is appropriate. When the reformation of criminals is being dicussed, the non-literal interpretation is appropriate. In all the experiments I am going to describe, the time to read and understand a proverb is measured as an index of the difficulty of understanding it.

For each proverb, four paragraphs were written; each described an ordinary situation or event like ice skating, signing a lease, a dog fight, or studying the stock market reports. Two paragraphs referred to the literal meaning of the proverb and two referred to the non-literal meaning of the proverb. Paragraphs also varied in length; one paragraph of each type was two or three sentences longer than the other. The long paragraphs elaborated the situation or event described by the short paragraph. An example set of paragraphs is presented in the handout.

I took several precautions to ensure that my materials were satisfactory. I am confident that any difference in the comprehension latencies for the proverbs are due to the effects of the type of interpretation or the length of the preceeding paragraph. I think I have ruled out possible confounds. The proverbs were used naturally in all the paragraphs. The proverbs were unfamilar ones and two different types of interpretations were made of the proverbs following the two types of paragraphs.

Thirty two undergraduates were recruited as subjects in the first experiment. Sixteen paragraph sets were used. Each subject saw eight different kinds of paragraph-proverb pairs. They saw paragraphs referring to either the literal meaning of the proverb or to the non-literal meaning of the proverb. These paragraphs could be either

short or long. The proverb that followed the paragraph could be either appropriate or inappropriate to the paragraph. Each subject saw two examples of each type of trial. Across subjects each proverb followed each type of paragraph equally often.

So each subject was shown sixteen paragraphs followed by proverbs. The subjects were instructed to read the paragraph and then to read the next sentence. They were told to decide as rapidly as possible whether this sentence described the same situation or event described by the preceding paragraph. If the sentence was appropriate to the preceeding paragraph, they were instructed to press one of two response buttons. If the sentence was inappropriate, they were instructed to press the other button.

The comprehension latencies--the time required to read the proverb and to determine if it was appropriate--were submitted to an analysis of variance. This analysis treated type of interpretation, length of preceding paragraph, and the appropriateness of the proverb as fixed effects.

Insert Figure 1 here

Here mean comprehension latencies in seconds are plotted as a function of the type of interpretation (literal versus non-literal), length of the preceding paragraph (short versus long), and appropriateness of the proverb (appropriate versus

inappropriate). As you see, there is a significant effect of type of interpretation; proverbs used literally are comprehended more slowly than proverbs used non-literally. There is also a significant effect of length of preceding paragraph; proverbs following long paragraphs are comprehended more rapidly than proverbs following short paragraphs.

Both type of interpretation and length of paragraph interact with the appropriateness of the proverb. Proverbs used non-literally are more rapidly accepted than proverbs used literally while there is no difference in the latency to reject inappropriate proverbs used both literally and non-literally. Proverbs following long paragraphs are accepted more rapidly than proverbs following short paragraphs while there is no difference in the latency to reject inappropriate proverbs.

These results are inconsistent with an account of comprehension based on inferential processes. A non-literal use of an unfamilar proverb is more rapidly understood than a literal use of that same proverb. Ease of comprehension is a function of the amount of contextual information available. Proverbs used inappropriately are readily detected even when there is little contextual information.

Although inference-based accounts are not supported by this experiment, the findings do raise a further question. Why are the comprehension latencies so slow? It may be the case that the decision task does not reflect more natural comprehension processes.

A second experiment addressed this question. Twelve subjects were required to first read a paragraph, then to read a proverb that was appropriate to the preceding paragraph, and then to press a response button to signal when they had finished reading the proverb. The materials prepared for Experiment I were used; paragraphs varied in length and the type of interpretation required of the proverb. I again measured the latency to read the proverb as a function of the type of interpretation and length of the preceding paragraph.

Insert Figure 2 here

Again, there is a significant effect of type of interpretation; proverbs used literally are understood more slowly than proverbs used non-literally. And there is a significant effect of the length of the preceding paragraph; proverbs following long paragraphs are comprehended more rapidly than proverbs following short paragraphs.

Compared to Experiment I, the response times are much faster. However, the same pattern emerges. The task of judging whether a proverb is appropriate or not to the preceding paragraph has a consistent effect on the comprehension latencies for all kinds of paragraph-proverb pairs. Even when subjects are only required to read the proverbs, the type and length of the preceding paragraph have strong effects on the response times.

A further question raised by Experiments I and II concerns the significant advantage for proverbs used non-literally. Why is it so difficult to understand the literal use of an expression? It may be the case that subjects were confused by the mixed presentation of proverbs used both literally and non-literally. Perhaps subjects were anticipating a non-literal relation between paragraphs and final sentences. Their long comprehension latencies for literally used proverbs could result from the disconfirmation of this anticipation. The comprehension of proverbs used non-literally would be facilitated at the expense of the comprehension of proverbs used literally.

It might also be the case that subjects were aware of subtle cue to the non-literallity of the proverbs. Typically, there is a shift between the tense of the paragraph and the tense of the proverb or a shift in the person of the pronouns used in paragraphs and proverbs. Noticing such a shift would provide an added cue for the non-literal use of the proverb. Just as raised eyebrows or intonation contours could prepare a listener for irony or sarcasm, an indefinite "you" could prepare a reader for a non-literal proverb. When the proverbs were in fact used literally, such a shift in tense or person could have detrimental effects.

Experiment III was designed to see whether separating proverbs used literally from proverbs used non-literally would facilitate comprehension of the literally-used proverbs.

Thirty two subjects were shown two blocks of paragraphs and proverbs. The proverbs in one block were all used literally, when appropriate, while the proverbs in the other block were all used non-literally, when appropriate. Again subjects were shown appropriate and inappropriate proverbs following short and long paragraphs. I measured the latency to decide whether the proverb was appropriate or not. Except for the blocking manipulation, this experiment was identical to Experiment I.

Insert Figure 3 here

Here there was no significant effect of the type of interpretation. Proverbs used literally were no more difficult to understand than proverbs used non-literally. However, proverbs after long paragraphs were understood more rapidly than proverbs after short paragraphs. The blocking manipulation has reduced the latency to understand literally used proverbs when compared to that found in Experiment I.

These results suggest that the subjects in Experiments I and II were anticipating non-literal uses of the proverbs and that such anticipation interfered with the comprehension of literally used proverbs. The remaining reaction time advantage for appropriate proverbs used literally may result from a conflict between their literal meaning and cues, like shifts in tense and person, for a non-literal use.

The three experiments I have presented do not support inference-based accounts of the comprehension of non-literal meanings. Accounts based on shared presuppositions and expectancies do seem to be indicated as the amount of information there is available to a reader strongly determines the ease of comprehension. Accounts of comprehension must be based on shared presuppositions and expectancies--building on, but not directly incorporating, Gricean notions of conversational implication. It is not the case that novel non-literal meanings of speaker's are more difficult to understand than novel literal meanings.

Inference-based accounts of the comprehension of non-literal meaning treat the formal description of conversational implication as having psycholgical reality. These accounts claim that the processes used in comprehension mirror those used in the analysis of conversational implication. I prefer to claim that the sorts of knowledge included in the description have psycholgical reality although the comprehension process is not inference-based. The goal of comprehension is to understand what the speaker means. Sometimes what the speaker means is very close to she actually says. Othertimes, it is the opposite of what she says. In understanding another, we bring to bear many types of knowledge including the expectancy that speakers will conform to the principles of conversation. These and other tacit presuppositions about the topic of the conversation

guide our comprehension. It is not that the literal meaning of what another has said is not understood. Surely it is. But I don't think that there is a point during comprehension when we have understood what another said but we have not understood what she meant. Or at least what we think she meant. Comprehension is a unitary process concerned with determining what the other means. Whether a speaker speaks literally or non-literally, directly or figuratively, we try to understand what she means. The more information we have, the more presuppositions we share with the speaker, the more easily we understand the speaker's meaning. Novel, non-literal uses of language are not intrinsically more difficult to understand than literal uses.

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Handout

In order to compute indirect meaning:

1. Compute the direct meaning of the utterance.
2. Decide if this meaning is what was intended. Are there sufficient and plausible reasons for the speaker to have intended to convey this meaning, or this meaning alone, in this context?
3. If not, compute the indirect meaning by way of the cooperative principle and the conventions on speech acts.
4. Utilize the utterance on the basis of its indirect meaning.

(after Clark & Clark, 1977)

Example paragraph set:

Proverb: If you cannot bite, never show your teeth.

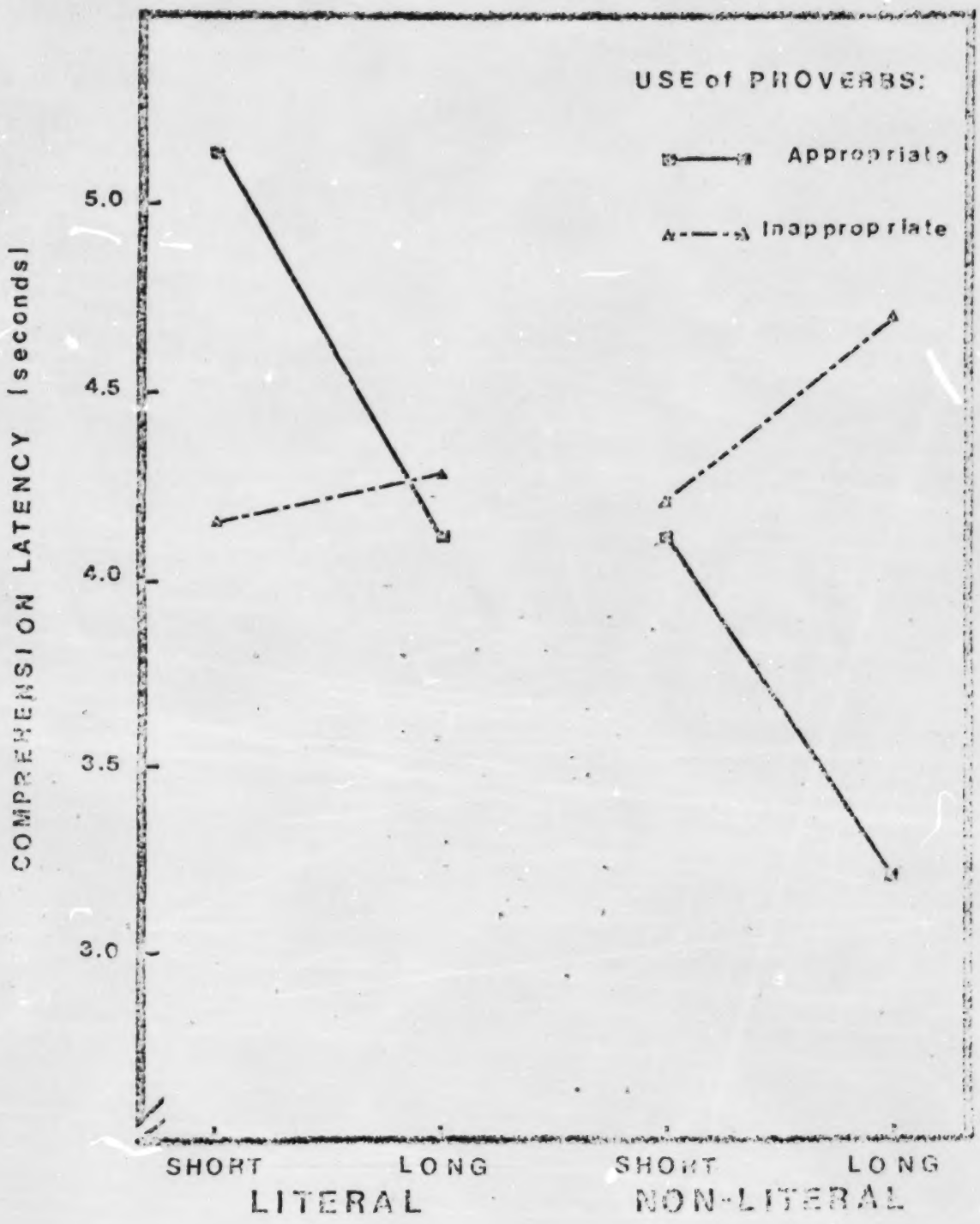
Short Non-Literal Paragraph: Tom started swearing at the cop who stopped him for running a red light. That wasn't too smart of Tom.

Long Non-Literal Paragraph: Tom was stopped running a red light. As soon as the cop came up to the window, Tom began to swear at him and to call him names. It was dumb of Tom to do that; he just made the cop more determined than ever to give him a ticket.

Short Literal Paragraph: My old dog Rover snarled at the mailman and got himself kicked. Rover is too old to harm anyone but he tries to bluff.

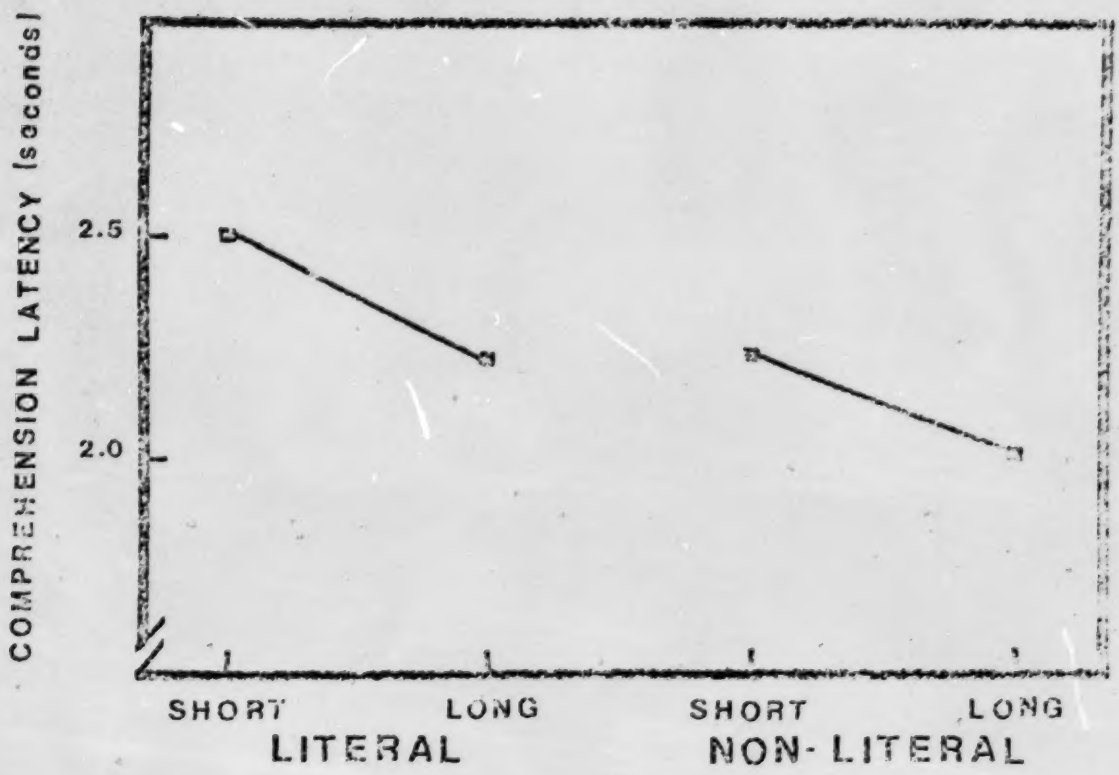
Long Literal Paragraph: I've got this old dog Rover who growls a lot but is really a coward. The other day he snarled at the mailman who just gave him a good swift kick. Rover slunk away beaten. Rover is too old to harm anyone but he tries to bluff.

Figure 1



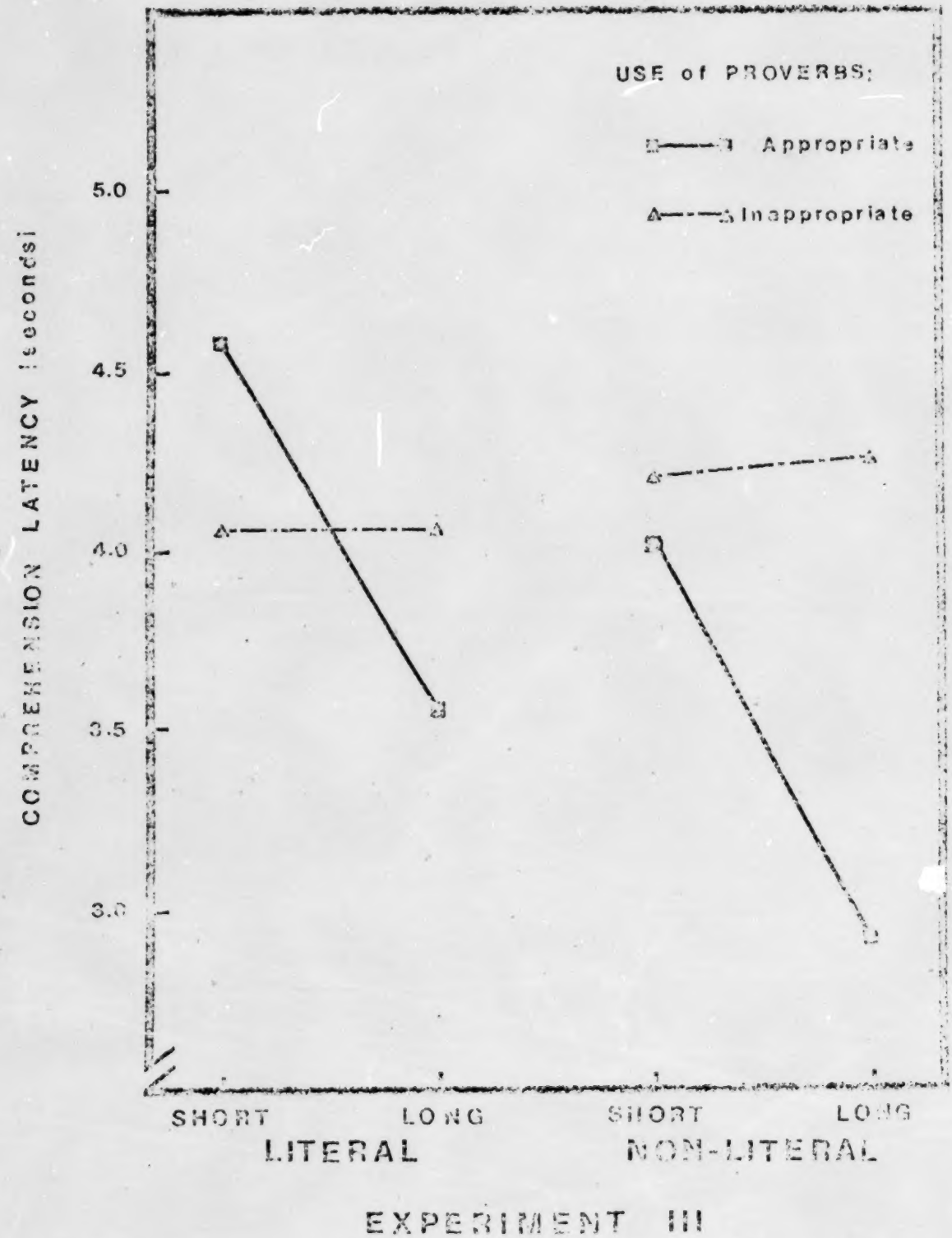
EXPERIMENT I

Figure 2



EXPERIMENT II

Figure 3



EXPERIMENT III